Journal of MOLECULAR BIOLOGY

EDITOR-IN-CHIEF
J. C. KENDREW

ASSISTANT EDITOR
S. BRENNER

EDITORIAL BOARD
G. Attardi
S. Bernhard
D. Branton
J. Cairns
G. N. Cohen
D. M. Crothers
J. E. Darnell
G. von Ehrenstein
G. Felsenfeld
W. Gilbert
J. Hurwitz
A. D. Kaiser
A. Klug
G. E. Palade
D. C. Phillips
L. Stryer
C. Thomas
A. Tissières
J. Wyman

VOLUME 56
28 February 1971 to 28 March 1971

ACADEMIC PRESS
LONDON and NEW YORK

UNIVERSITY OF HAWAII LIBRARY

Copyright © 1971, by Academic Press Inc. (London) Ltd.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers.

Printed in Great Britain

CONTENTS OF VOLUME 56

NUMBER 1, 28 FEBRUARY 1971

VASSALLI, P., LISOWSKA-BERNSTEIN, B. and LAMM, M. E., Cell-free Synthesis of Rat Immunoglobulin. III. Analysis of the Cell-free Made Chains and of their Mode of Assembly 1

BURGE, R. E. and DRAPER, J. C., Structure of Bacterial Flagella from *Salmonella typhimurium*: Effects of Hydration and Some Stains on the Equatorial X-ray Diffraction Patterns of Cast Films 21

BLAUROCK, A. E., Structure of the Nerve Myelin Membrane: Proof of the Low-resolution Profile 35

GUHA, A., SATUREN, Y. and SZYBALSKI, W., Divergent Orientation of Transcription from the Biotin Locus of *Escherichia coli* 53

NINIO, J., Codon–Anticodon Recognition: The Missing Triplet Hypothesis . 63

Appendix—CLAVERIE, P., Calculation of Interaction Energy between Triplets in the RNA 11 Configuration 75

DE CLERCQ, E., WELLS, R. D., GRANT, R. C. and MERIGAN, T. C., Thermal Activation of the Antiviral Activity of Synthetic Double-stranded Polyribonucleotides 83

CHAN, T-S., WEBSTER, R. E. and ZINDER, N. D., Suppression of UGA Codon by a Tryptophan tRNA 101

COLLI, W., SMITH, I. and OISHI, M., Physical Linkage between 5 s, 16 s and 23 s Ribosomal RNA Genes in *Bacillus subtilis* 117

WILSON, H. R. and RAHMAN, A., Nucleoside Conformation and Non-bonded Interactions 129

HOHN, B., LECHNER, H. and MARVIN, D. A., Filamentous Bacterial Viruses. I. DNA Synthesis during the Early Stages of Infection with fd . . 143

HOHN, B., VON SCHÜTZ, H. and MARVIN, D. A., Filamentous Bacterial Viruses. II. Killing of Bacteria by Abortive Infection with fd 155

STELLWAGEN, R. H. and TOMKINS, G. M., Preferential Inhibition by 5-Bromodeoxyuridine of the Synthesis of Tyrosine Aminotransferase in Hepatoma Cell Cultures 167

FRAENKEL, D. G. and BANERJEE, S., A Mutation Increasing the Amount of a Constitutive Enzyme in *Escherichia coli*, Glucose 6-Phosphate Dehydrogenase 183

LETTERS TO THE EDITOR

ALTMAN, S., BRENNER, S. and SMITH, J. D., Identification of an Ochre-suppressing Anticodon 195

BURGER, R. M., Kinetics of Labeling of Fast-renaturing DNA in *Bacillus subtilis* 199

GREEN, N. M., DOURMASHKIN, R. R. and PARKHOUSE, R. M. E., Electron Microscopy of Complexes between IgA (MOPC 315) and a Bifunctional Hapten 203

DOURMASHKIN, R. R., VIRELLA, G. and PARKHOUSE, R. M. E., Electron Microscopy of Human and Mouse Myeloma Serum IgA . . . 207

NUMBER 2, 14 MARCH 1971

DUBNAU, D. and DAVIDOFF-ABELSON, R., Fate of Transforming DNA following Uptake by Competent *Bacillus subtilis*. I. Formation and Properties of the Donor–Recipient Complex 209

COHEN, C., SZENT-GYÖRGYI, A. G. and KENDRICK-JONES, J., Paramyosin and the Filaments of Molluscan "Catch" Muscles. I. Paramyosin: Structure and Assembly 223

SZENT-GYÖRGYI, A. G., COHEN, C. and KENDRICK-JONES, J., Paramyosin and the Filaments of Molluscan "Catch" Muscles. II. Native Filaments: Isolation and Characterization 239

KAPER, J. M., Studies on the Stabilizing Forces of Simple RNA Viruses. I. Selective Interference with Protein–RNA Interactions in Turnip Yellow Mosaic Virus 259

KAPER, J. M. and GEELEN, J. L. M. C., Studies on the Stabilizing Forces of Simple RNA Viruses. II. Stability, Dissociation and Reassembly of Cucumber Mosaic Virus 277

CHAMPNESS, J. N., X-ray and Optical Diffraction Studies of Bacterial Flagella . 295

SYPHERD, P. S., Ribosomal Proteins and the Conformation of Ribosomal Ribonucleic Acid 311

INMAN, R. B. and SCHNÖS, M., Structure of Branch Points in Replicating DNA: Presence of Single-stranded Connections in λ DNA Branch Points . . 319

LASKOV, R., LANZEROTTI, R. and SCHARFF, M. D., Synthesis, Assembly and Secretion of Gamma Globulin by Mouse Myeloma Cells. II. Assembly of IgG_{2b} Immunoglobulin by MPC 11 Tumor and Culture Cells . . . 327

KLEPPE, K., OHTSUKA, E., KLEPPE, R., MOLINEUX, I. and KHORANA, H. G., Studies on Polynucleotides. XCVI. Repair Replication of Short Synthetic DNA's as catalyzed by DNA Polymerases 341

MILLER, R. C., JR., BESMER, P., KHORANA, H. G., FIANDT, M. and SZYBALSKI, W., Studies on Polynucleotides. XCVII. Opposing Orientations and Location of the su^{+}_{III} Gene in the Transducing Coliphages ϕ80psu^{+}_{III} and ϕ80d$su^{+}_{III}su^{-}_{III}$ 363

PARKINSON, J. S. and HUSKEY, R. J., Deletion Mutants of Bacteriophage Lambda. I. Isolation and Initial Characterization. 369

PARKINSON, J. S., Deletion Mutants of Bacteriophage Lambda. II. Genetic Properties of *att*-defective Mutants 385

DAVIS, R. W. and PARKINSON, J. S., Deletion Mutants of Bacteriophage Lambda. III. Physical Structure of att^{ϕ} 403

LETTERS TO THE EDITOR—

PARKINSON, J. S. and DAVIS, R. W., A Physical Map of the Left Arm of the Lambda Chromosome 425

DEL MONTE, M. A. and KAZAZIAN, H. H., JR., Unequal Synthesis of Globin Chains after Extended Incubation of Rabbit Reticulocytes with L-*O*-Methylthreonine 429

YUKI, A., Apparent Maturation of *Escherichia coli* Ribosomal RNA *in vitro* 435

ANNOUNCEMENT 441

NUMBER 3, 28 MARCH 1971

SIMPSON, L. and DA SILVA, A., Isolation and Characterization of Kinetoplast DNA from *Leishmania tarentolae*. 443

SICCARDI, A. G., SHAPIRO, B. M., HIROTA, Y. and JACOB, F., On the Process of Cellular Division in *Escherichia coli*. IV. Altered Protein Composition and Turnover of the Membranes of Thermosensitive Mutants Defective in Chromosomal Replication 475

DAVIDSON, E. H. and HOUGH, B. R., Genetic Information in Oocyte RNA . 491

RIPPON, W. B., ANDERSON, J. M. and WALTON, A. G., Polarized Infrared Studies of a Polytripeptide with Superfolded Cross β Conformation . . 507

ANDRIES, J. C. and WALTON, A. G., The Morphology of Poly (Gly–Ala–Glu(OEt)) 515

REEVES, R. H. and ROTH, J. R., A Recessive UGA Suppressor . . . 523

HATLEN, L. E. and ATTARDI, G., Proportion of the HeLa Cell Genome Complementary to Transfer RNA and 5 s RNA 535

ALONI, Y., HATLEN, L. E. and ATTARDI, G., Studies of Fractionated HeLa Cell Metaphase Chromosomes. II. Chromosomal Distribution of Sites for Transfer RNA and 5 s RNA 555

Egawa, K., Choi, Y. C. and Busch, H., Studies on the Role of 23 s Nucleolar RNA as an Intermediate in the Synthesis of 18 s Ribosomal RNA . . 565

Maio, J. J., DNA Strand Reassociation and Polyribonucleotide Binding in the African Green Monkey, *Cercopithecus aethiops* 579

Espejo, R. T., Canelo, E. S. and Sinsheimer, R. L., Replication of Bacteriophage PM2 Deoxyribonucleic Acid: A Closed Circular Double-stranded Molecule 597

Letters to the Editor—

Espejo, R., Espejo-Canelo, E. and Sinsheimer, R. L., A Difference between Intracellular and Viral Supercoiled PM2 DNA . . . 623

Lodish, H. F., Thermal Melting of Bacteriophage f2 RNA and Initiation of Synthesis of the Maturation Protein 627

McLean, J. D. and Singer, S. J., A Technique for the Specific Staining of Macromolecules and Viruses with Ferritin–Antibody Conjugates . 633